Quebec, Canada
1919.

POCKET NOTES.

doc. 116

C. Schuchert

doc. 116

Quebec, Canada, Sept. 9 - 1919

Tuesday.

Cold, windy, and threatening day.
Started across the St. Lawrence and by train
on the south side the river from Point Levis
to see the great cantilever bridge being
across the river. This about 6 miles
at Cape Rouge.

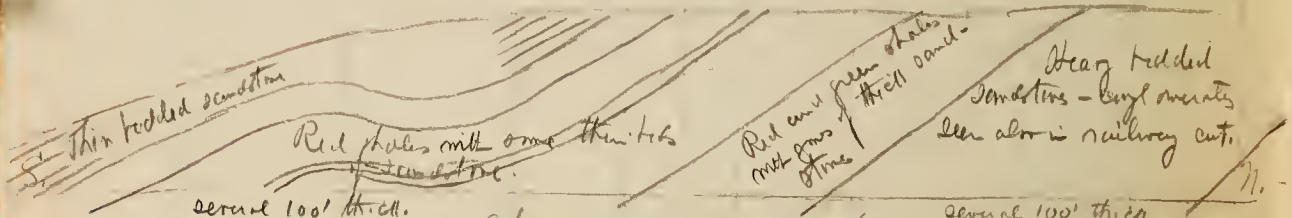
The railway runs partly along the bridge
on the south side of the river enters a cut in right
angles to the previous course of the river and
times. The north end there is a long
very near and deep precipitous
Notre Dame which rises
The bluff here descends
to the Plains of Abraham.
some
in
on
the

On Sunday Sept 7 I was at Montmorency and here in the Laurentian there is now a brick making plant. No fossils fairly well were seen. The shales are dark blue, and almost devoid of sandstone. In two places were very shallow current ripples with the crests about 4 inches apart. Their trend was roughly N.-S on the strike of the formations.

The sandstone, about 4 feet thick, bedding
are clearly formed in color
the coarse grain and white matt is a fine
conglomerate, the gravel lies with the pebbles up
to 1/2 inch, though some commonly around 1/4 inch,
are in more or less rounded pebbles. These
pebbles lie usually in thin layers of
stone (layers) the white gravel [illegible] more in
the conglomerate, the pebbles are sandstone
rounded white [illegible] and pink rock
with occasional pieces of petrified wood. In
places of the pebbles are common the gravel
sandstone is pieces up to 1 1/2 inches across and
up to 1/2 inch thick. The [illegible]
[illegible]. This seems considerable
action and [illegible]
this is [illegible]
one after the other [illegible]
[illegible]
Evidently of freshwater [illegible]

The dip of the sandstone is about E. 45°

and area, [illegible] to the S.E.
Strike about N.E. – S.W. magnetic.
Outcrops [illegible] in the cut-[illegible]
in a zone of red shale, more or less sandy and
decidedly micaceous, dipping). A persistent layer of hard
and [illegible] about 8 feet [illegible] red shales, [illegible]
more thick sandstones.
All of the rocks of this [illegible] region
to the [illegible] is marine deposit. There does not the
slightest trace, like, not even of [illegible] of
fossils. The sands are not [illegible] sandstone
sand but [illegible] clastic with grains rounds,
or that the sands have [illegible] down a distance
unusual by the rivers. Hard [illegible] and
[illegible] and channeling
[illegible] can [illegible] the cut-[illegible] are seen [illegible]
to be [illegible] with and [illegible] very [illegible]
[illegible] of the [illegible] sandstone
stone [illegible] to the south. All shales and [illegible]
[illegible] are, [illegible] in thin [illegible]. For [illegible]


Thin bedded sandstone
Red shales with some thin beds
several 100' thick.
Red and green shales with some thin sandstones
Heavy bedded sandstones - beds sometimes seen above in railway cut.
several 100' thick
11.

Chaudière River North bank

the section appears as above.

On the right hand the sandstone [illegible] and then [illegible] Dillon shales. To- [illegible] Here are also green shales.
wards the [illegible] they [illegible] sandstone
sometimes dirty and [illegible] in [illegible] consider the [illegible]
some in, [illegible] which [illegible]
either thick [illegible] of time [illegible] Dillon is much crushed and rilled over
and drawn up, [illegible] shales, and the sand-
stone [illegible] and at [illegible]
into [illegible]

Almost [illegible] the
shale [illegible] Dillon [illegible]
[illegible] and seems
[illegible] south.

Now there is also a section but maybe for a little more.
Here in the [illegible] on the north side of the ^

Quebec, Wednesday Sept. 10 1919

Rained all night and all [illegible]

On the first N-S [illegible] of the Lake
[illegible] Main strike [illegible]
[illegible] Pegmatite [illegible] B a

[illegible] 30

[illegible] Hing

[illegible] quartz

[illegible] Finder [illegible] and
are pegmatite [illegible] block mica;
[illegible] Cambrian,

Faye
[illegible] 18 [illegible] or schists
[illegible] Mr Mac-Cambria explaining

[illegible] small, [illegible]
are in 6 [illegible]

[illegible] after crystl. time
just beneath the

Sept. 10 1919

Hastings ... and ... three ... of ... (...)
... and about ... Langton ... the ...
Head ... is ...
Transition ... the ... Lower ...
... Ordovician ...
... Ramsey ...
... ?
Lath ... in ...
... 1 ... 3
This may be Raymond's unit A. ... treat times as the others.
... that is totally ...
above mentioned ...
... 175 feet down ...
... 150 feet more of Hastings and green
shales to the road side at the edge of the river. On the

Dep. 10-1919

strata continuation of Coal I is 1' north below Main St. than in the eastern area fully 200 feet more of gruenish shales with a decreased thin sandstone.

Coal is therefore shown in the most eastern exposure on Main Street below the upper conf. not less than 325 feet of Lower.

Lower conf. 100 ft
Shales 200 ft
Upper conf. 68 } 368

Le to lower conf. and the total to Coal I was added at least 320 feet more.

Sept. 10-1919

distance

distance

=C

Main [illegible] the Michen [illegible]

[illegible]

[illegible]

[illegible]

Apparently it is a town one, [illegible] and it [illegible]

[illegible]

sandy beach [illegible] of the Lungan.

the ship [illegible]

(The next day [illegible] the [illegible] a difference)

C

(Like there was a drive if [illegible])

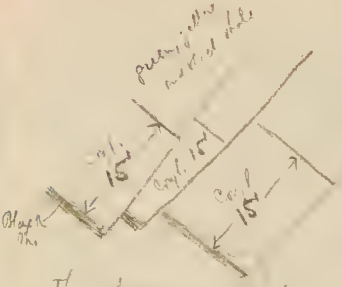
Then the

85

100 pm

Sept. 11-1919

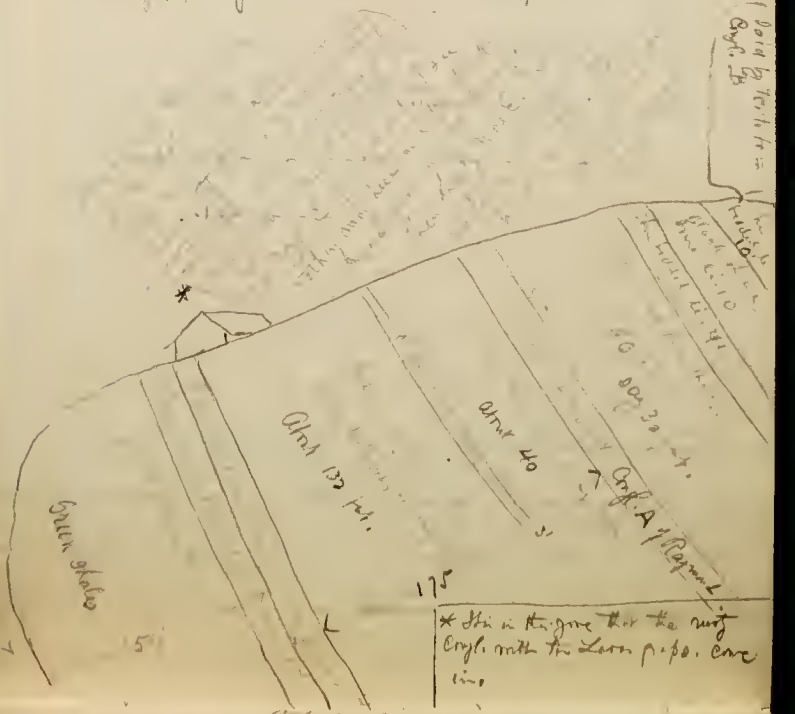
Rained again all night and off & on most today



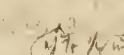
The Meeting of the conglomerate A on Main River, 2 in.

Largest quantity of large rollers [illegible] Finest coal at top.

In the large quarry where Main shaft goes of fall. and most eastern



Def. 10-1919.
(one with a saint on it the other a cross)



by

The great masses of conglomerate, the immense thickness of sand and sandstone of the basal beds of limestone deposits all the way out of the Lewis. The thin bedded limestone including the Humanda zone are in the upper beds.

The famous graptolite layers in the first cut on the railway appear to be just above the second compl. (Patterson's list not to the 3 up) Overlay from the base up. It shows on the north side of the cut. Some trilobite zone in at least 350 (minus 40 or 50 ft) feet above the base. The next graptolite zone is just below the Humanda zone in still richer but known the zone of the upper Lewis.

Feb. 10. 1919

In these conglom. formed there must have been cliffs in the sea (? fault faces) exposing at least here Upper Cambrian and Laurian. I am not certain that the pebbles here at Levis have Lower Cambrian fossils or that where these li. were exposed. In general it means that Lower Cambrian li. were followed by Upper Cambrian li. and over the latter came the Laurian sandstone. Of Lilly and Hales I saw no pieces in the conglomerate today.

As I do not trust the succession as made out today I will go over it again to-morrow.

The limestone pebbles are too generally distributed throughout the Levis to think of them all as of cliff origin. In places the blocks are large and such may be at the base of cliffs but in the majority of cases the pebbles must have had another source.

Sept. 11 - 1919

(The next 4 describing beds, that come in higher & lower, were originally 4 apart.

at least 15'

not more than 20'.

At 20

25-30'

possible here.

other

Feb. 11-1919

7 00

40

dipping about 45° E.

seen on the

Calaveras

, as in the southern

go sands. This gives a thickness of about feet for these sandstones alone of the Lawson formation.

Sunday Oct. 14 - 97. Quebec.

Heavy hot rain [illegible] was a fine day.
[illegible] Wonder if it will, No, it

Started out to study the [illegible] conglomerates. For
[illegible] we are on Main street at the point where the three
[illegible] roads meet. Beneath the soil, here about 6" [illegible] thick, occurs
a fissile black rock about 3 feet thick. Into it has been
[illegible] dipping southeast at [illegible] angle, 12° to 18° [illegible] and
[illegible] depression around it as if dragged
into the [illegible]. [illegible]
position as the [illegible]. The
the boulders are of all sizes up to 2 feet across and more, it
does not [illegible] and has 12" to 18" of thick. The
mass of the [illegible] boulders [illegible] gray
[illegible] with [illegible], and [illegible]
[illegible] of the 2 feet and 15" [illegible]
is all [illegible]
[illegible] are not rounded and [illegible] Rocks.

The Generalized Levis Formation at Levis, Quebec, Canada.

As seen on east Main street where the road goes up the hill, and along the International Railroad east to the Ship Yards. Thin apparently the least disturbed area about Levis.

The section appears to be descending. The lithology appears to be changing rapidly from place to place. Evidently the material of a very shallow sea.

Top of Levis series unknown. Overlying formation said to be the Quebec City formation of Trentonian age. There appears to be no Chazy equivalent here, though pebbles in the Quebec City formation indicate that the Upper Chazy or rather the Normanskill equivalent (Cumberland Head) was in this general region.

There is apparently a thickness of hundreds of feet above the the strata here listed, but position cannot be made out for want of continuity in the section.

Thin bedded lt. gray dolomite Reynolds Type the same as Conf. B. Not walked out. Thickness as seen from base of cliff 10'+	Conf. B on east R.R. St. into Main St. 30'

(Continued second page over)

Of sandstone I see but one block and of actual shale and igneous rocks none. All of the limestone may have been derived from a single limestone formation, some of the coarser rocks. Toward the top the layers thicken and at the top the 2 to 3 or 4 thick limestone

[illegible]

Generalized section continued.

Black shale with thin li. lagers	10'	Black shale with local masses of li. conyl.	30'
Li. conyl. A	2' 6'	Li. conyl. A,	3'
Black shales			8ft 10'
Green, hard sh. tending to be in thick and somewhat lin (yellow weathering) beds			30'
Black and green sh.			18'
Green and Mauve sh. with hard grey-green lin (yellow-weathering) zones			90'
Grey to light-blue thin bedded li. with green and black shales. Apparently the Stenmarkia zone of Raymond (If it is not this zone then the Stenmarkia beds comes in last above all of this section) Has Ellesmeria and graptolites.			15'
Green, hard sh. tending to be lin (yellow weathering)			15'
Hard greenish sh. with more thin yellow weathering darker zones			70'
Green fissile sh.			58'
End of sh. quarry on Main Street			
(Continued second page one)			361'

Generalized section continued.

361'

Green and yellow weathering sh. with an occasional sandstone (These occur from Maine st. down to Interurban Railway tracks). 150'

Green sandy shales down to 1st rock where occur with sandstones or empl., these called C by Raymond It seems like in this zone that occurs the fine graptolite locality in the cut on the Interurban R.R. Here is green shales, thickness may be 130' 200'

Black micaceous sandy sh. with thin ss. 30'

Near the top occur the large Phyllograptus

Green shales below and black rusty weathering (pyrite) shales above with an abundance of Tetragraptus quadribrachiatus and Dicho-graptus 20'

Yellow weathering li empl. with large blocks 20'

The empl. rocks most like B and it may actually be it. If so then these beds must go 575 feet higher in the section. Their present position is due to faulting. In other words mentioned the horizon of the Chumardia li or

(section continued second page over) 711

a green is and little rounded Lenses coarse sandstone.
the fair Lenses are derived [illegible] the
limestone boulders. The Woods are about half under 6 inches
the Land Shell, the remainder are Woody broken pieces of the
Trees as a rule not more than [illegible] Eng. and 4
Inches Shell. [illegible]
Fossils.
[illegible] are upper [illegible] very much like [illegible] with
[illegible] sandy beds. The [illegible] and 8 at [illegible] relow
[illegible] sandstone [illegible]
[illegible] 12 inches [illegible] 3
inches.
At the [illegible]
[illegible] sandstone [illegible]
[illegible]

Generalized section continued

711'

Below them in the Hack Lakes. Even as the sequence here given will not be altered by the transposition,

Grey sandstones, more or less conglomeratic with li. pebbles, large sandy green L. or even quartz conglom. like those of the Iron Lilley. Near the slip yards it is composed as follows:- 68'

Top heavy bedded coarse grey ss. 8'

Thin bedded light blue to grey li. with almost no Hack Lake fossils 40'

Iron grey ss. with li. congl. 20' In places the Iron Lady is all Hard li. with a sandy-li. matrix. (This is Logans Conglomerate Coast Ridge)

Green sandy shales down to river ? 200'

Dip 85 yards across with the dip 60°

Heavy li. congl. full with a coarse to fine gravel quartz paste. Occurs at the Slip yards. Appears as one unbedded mass (This is Logans Conglomerate D)

Bedrock about 100'

St. Lawrence River Base of Series unseen. 1079'

(Continued second page rear)

Other sections

The undoubted Hemiaspidia li. are in thickness 15'
Black shales 10
Green and yellow laminated limy-sandy sh. with
Black shale zones. Coordinate thickness.

At the Brooklyn stairs. Contorted anticline.
Hemiaspidia layers at level of street 15'
Green and black sh. with thin zones of li 20'
Then the whole cliff of green laminated sh. of various
shades and more or less streaked with black bands
one-half inch thick. Very near it there a black sh
zone. Cliff probably over 100 feet high. The strata dip
S. about 50°. There are 110 steps and little light
brown band per cent = 8 inches. This covered a dist 73 feet.

A little farther E on Main St. but W of the three apparent
faults in evgl. in the section.
Hemiaspidia thin li. near top of cliff 15'
Dark shales 10 to 15'
Green shales 30'
(continued second page over) 60'

stream well rounded, they are often quite angular
and irregular scattered through the sandstone. They
are found in the bedding of the sandstone.

The dip is about 5° and varies from
about angle of 45°.

Many of the [illegible] are
rounded, a separated material, and
[illegible] conglomerate
[illegible]
[illegible]
[illegible]

Other sections continued.

	60
Conf. Ls. with large boulders	6 to 8'
Black Sh.	4'
Green Sh. as at steps. Probably 50' down to strat	50'
	122'

At the three offset faulting place.

Ferruginous Lds at top	15'
Black Shales	4'
Green Sh.	20'
Black Sh.	4'
Green Sh.	7'
Green Sh. as at steps. Probably 40' seen to strat	40
	90'

looked for [illegible] [illegible] ripple marks, current-bedding, and interformational conglomerates but saw nothing of the kind. Nor in the black shale facings is there the slightest trace of organic markings — trails, etc. In spite of all this evidence the nature of the [illegible] indicates there must have been currents [illegible]. The climate must have been a pluvial one, but if a sea deposit why no trace of organisms? Can these deposits be tidal flood plain deposits? [illegible] [illegible]? If [illegible] [illegible] [illegible] delta [illegible] [illegible] cause [illegible] [illegible] [illegible] [illegible] have been at work, and ice bring together [illegible] [illegible] distributed over [illegible] [illegible]? The [illegible] [illegible] [illegible] [illegible] [illegible], [illegible] [illegible] one C [illegible] considerable coarse-grained [illegible] [illegible] in [illegible] [illegible] [illegible] the [illegible] in [illegible] and [illegible] [illegible] in

There is very little evidence, if none at all, for the ice interpretation. I think the Permomail and explanation will suit best. Previous to the Lewis the country was either faulted or folded, rather the former, and rock slides produced. In general the material got to the sea in small pieces and the constantly rising sea on the land finally consumed most of these rock slides. In the places of their origin they made the local conglomerates, and only in the two most southern zones is the material still preserved as the rock slide material.

dose clustered masses, [illegible] and [illegible] that
seed-bearing [illegible] and ice-[illegible]
ice-[illegible] [illegible] masses and the main
land [illegible] sandstones, with [illegible] of a [illegible]
quartzite [illegible] and [illegible]
in a [illegible] (see above)

[illegible] and [illegible]
the [illegible] waters. Of [illegible]
[illegible]
[illegible]
make their appearance.

One may in the [illegible] most southern [illegible]
end. In the most southerly [illegible] a [illegible]
[illegible] that is, at least 50 feet [illegible] 40 feet thick.
[illegible] and stone
[illegible] smaller masses [illegible]
[illegible] much [illegible] scale and [illegible]
green
[illegible]. The white must be [illegible]
the
[illegible] are [illegible] the [illegible]
green and blue
[illegible]. At one [illegible]

Later got a few more fossils, one Lyttonia or Brachiopod

Opposite the station to the south are exposed in a railway cut some limestone of Devonian age. This is four miles east of Lewis. A very short distance east are the old shales of the Silurian.

[illegible] e Ships fauds.
Their length [illegible] 1/2 [illegible]
arbert.

All the fossils seen are of either upper Cambrian or Cyathian age, and I rather think the latter. Of ostracods I saw at least five. They are circular in section with the septa consistently concave, but none showed the siphuncle which leads to the view that it may be small. One of the cephs. was 1/8 inch in diameter with an increasing curvature. As no cephs. are known in the Cambrian it would seem that there was here a good development of Cyathian.

Some milky white limestones are exceedingly scant in fossils, save of Hyolithes, but I feel they had considerable fossils. If a pebble hit a sledge hammer and a sharp ring would yield some good fossils.

Some of these limestones had undergone diagenetic change in the formation of tetragonal stalactite. Then on weathering becomes siliceous and encloses calcareous fossils. But they are all inorganic.

Monday Sept 15-1919

A bright cool morning and I am off for Rimouski, 170 miles to the easterly limits. Fare $5.95 = 3½¢ per mile.

At St. Charles Junction we are on the St. Lawrence plain. To the north we can see the uplifted Laurentides and to the south the overthrust scarp of the great fault that borders the St. Lawrence river. It is from 2 to 3 miles to the river and 4 or 5 mi. to the fault scarp. The grand St. Lawrence scarp stands out splendidly this morning, and from the railway it does not look as if the foot of an elevated rolling plain that it really is. (here about 100' above tide) The Rimouski Valley is most as flat as the prairies of Indiana and Illinois.

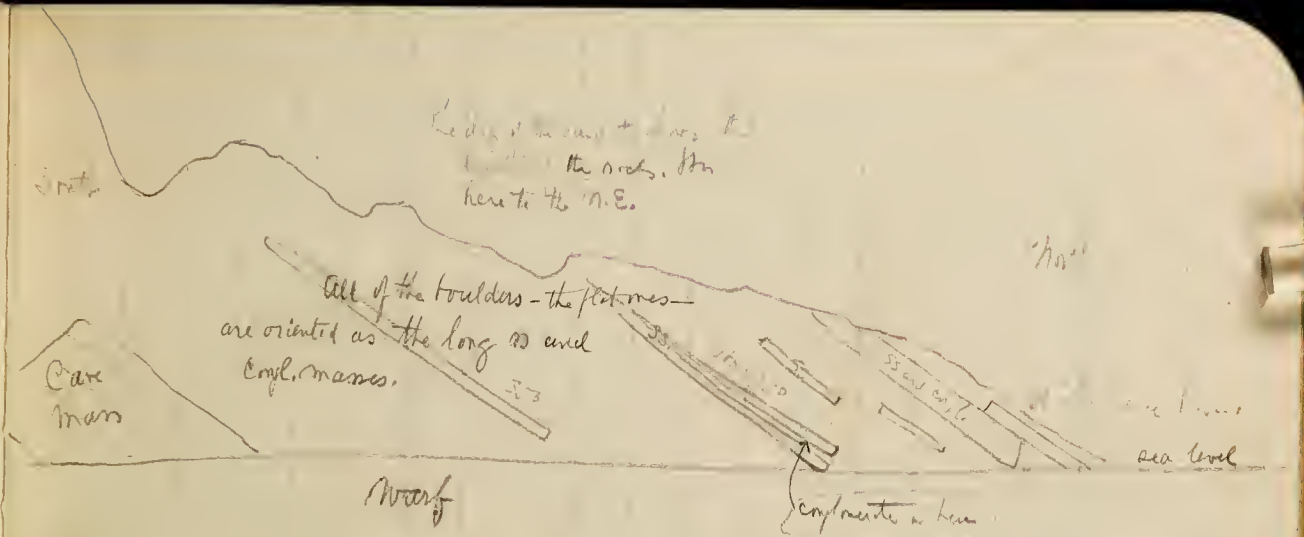
The red valley is reached a mile or two east of St. Thalie, 23 miles east of Quebec. The rise of the Laurentides is fine here and to the east for miles.

There is no flat plain land in front of the Laurentides opposite Cap St. Ignace. The north coast line has gone into the river.

As we approach St. Anne the Kamouraska on both sides of the railway ridges stick out higher and higher than the Rimouski

Very low ones have been seen all along to the westward.
plain.) Here are nothing more than Hard calc-
stone and quartz conglomerate that form about the Quebec
Bridge. The tops of these ridges stand many feet and in most
cases the place cut almost perpendicularly after them. Here was a
long time since I have seen Dilly and shales, and the idea I
get is that we are towards them in the [illegible] are for east round]
Laurier. [It would seem that the red shales become less as
Farther east all of the Laurentian ridges are
gone. At St. Philippe de Neri there are again many of
them. They continue all the way to St Paul's road near
St. Helene. They then are gone.
We have had to the water of the railway a constant
ridge of sandstone and almost Potsdam to Bic
a distance of 31 miles. At St. Fabien the shales show
slaty cleavage.

Stopping at Hotel de la Canada, rate $2.00 per
day. There is another hotel Laval here where
the clergymen seem to go to Canada

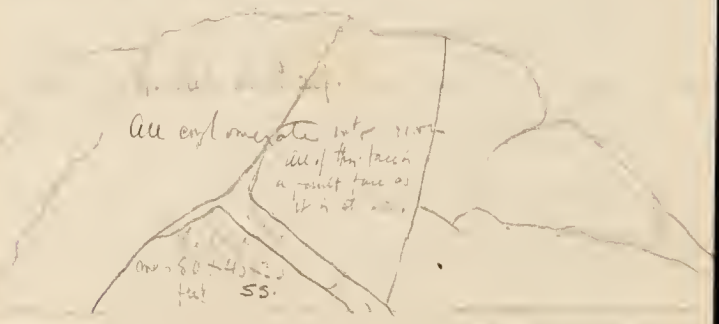


This mass at the wharf is 220 yards across.

Many [illegible] to the south.

The entire mass is of [illegible] conglomerate (Mio) mingled
with sandstone and [illegible]

If [illegible] rock, I see [illegible] a very dense
[illegible] rock [illegible] by 3 [illegible] in hardness up to [illegible]
the granite is pressed through the quartz pebbles & one that grains are very
fine across. Later saw one place well rounded about
2 by 4 inches in a decidedly siliceous sandstone. These may
be of Pre-Cambrian age. Later on saw more quartzites and
it may be that they are also of Cambrian age.
What all the material [illegible] are making most of the headings.
[illegible] complete [illegible] formation, [illegible]
[illegible] I [illegible] it [illegible]
[illegible]
[illegible]
[illegible]
[illegible]



Some places I saw the limestone moved about, that are supposed to be the in-coming limestone conglomerates.

These conglomerates are probably seen in the main of cliff origin. To the sea was being delivered great quantities of sharp sand and gravelly pebbles and these made good grinding material to wear down the cliffs. The sandstones and limestones as they fell into the sea were more or less rounded and angular. The green sandstones of Silliery time.

I saw no sandstone boulders larger than 4 or 5 feet across, and the limestone boulders very rarely are more than 3 feet through. Probably the great majority of boulders are under one foot in diameter and are fairly well rounded. We get the idea that the pieces are not of the so-called form as the boulders are not flat ones.

The only way this conglomerate could have formed
is a vast slide and slump into the sea. (Later on I gave up this idea.)
the large pieces of the deformation or folding it may mean
that vertical elevation took place at the close of the Upper
Cambrian and from these fault scarps the material
broke away and slid into the sea. The sea
All of these great conglomerates seem make high ridges
and appear to be at the base of the [illegible]
of the Great [illegible] nearby [illegible].

The smaller lenses could be traced but many of
them are too small and [illegible] to
make mark. Then too there are no [illegible] as all
the interstices are filled with sand or [illegible] conglomerate.

The limestone lenses are similar to those of the
Pre Cambrian conglomerate - that is the pebbles are
smaller, but the lenses are all in all are the same as the
Hanson Run formation. (Later I gave up this supposition)
The Pre Cambrian conglomerate and the pebbles
of either a sandstone, quartz, conglomerate or limestone may
be of any origin, igneous or sedimentary.

Tuesday Sept 6-14 ?

It rained night and frost most of the time. The morning is fine with a shiny wind from the south and afternoon it [illegible] rain.

Shewn directly south of this across the shale of the strata. One first passes over dark and some dark slates and at the range road over this river there are hard grey white thick bedded quartzites. Then one passes in the next 1/2 mile [illegible] Contents of these over more. [illegible] some kind of material and breaks at the result [illegible] all are of the Dilling formations [illegible] then in a [illegible] the range. Any of these quartzites may have come from the conglomerate [illegible] Saw one block [illegible] acres made up of [illegible] pebbles most of [illegible] white quartz and one [illegible] Flake [illegible] from the river [illegible] pebbles in the south a very thick series of [illegible] dark and [illegible] fine sandy shales [illegible] [illegible] kind of white. The sandstones become more [illegible] These [illegible] and they weather into

thin rusty layers. One of these sandstones was one 18" thick and in it [illegible] there are from 1 to 3 rows [illegible] the [It is these thinner ones that have most of the fossils.] nearly all the [illegible] a gastropod, a small bivalve and two specimens of a stigmal [illegible]. These fossils show [illegible] of the Lorraine. Seeing this I spent an almost two hours looking for these creatures but found no more. [illegible] over and over again the long sandstones [illegible] [illegible] that had fossils but in no other did I see any fossils. But all look to me like [illegible] Lorraine [illegible]. The fossiliferous piece was loose along the [illegible] side, and yet I believe that it was not far out of place having been [illegible] [illegible].

These Lorraine strata continue [illegible] for about 1000 feet [illegible] and it [illegible], before going down [illegible] to the S. [illegible] first [illegible] fossils. Then [illegible] say 5. [illegible] a wide [illegible] filled [illegible] to a village. I did not go across this valley, [illegible] 1/2 [illegible]. These Lorraine strata adjoin the Lilley at [illegible] fault.

The finding of these Lorraine rocks was a great surprise to me as I was looking for Cambrian fossils.

All of the Silliery slates and the associated quartzites and conglomerates are restricted to within a mile or 1½ miles of Bic. The upturned edges of quartzite are to the W. of Bic & form [illegible] standing in relief as an angle (seen right by my window). The slates of the Silliery are [illegible] than are the slates of the Lorraine.

In the afternoon went over [illegible] to see the quartzite [illegible]

[illegible] fossiliferous [illegible] in part. [illegible] fossiliferous [illegible]

[illegible] fossiliferous [illegible]

[illegible] further [illegible] the railway [illegible] Hotel Bic [illegible]

The [illegible] Stand left the railway [illegible] to the north [illegible] ledge — five

five

a syncline.

just north of the bridge on the river estuary

the second

estuary

Here on river estuary steeper dip.

replete with

in the samples

in places in the second estuary

down

coming to the north (it is a little the same one seen before)

estuary

after ridge one

with light ridges

the first one

and

There is still another ridge to the NW. All go

out to sea

on

side

estuary 450

estuary

from the ridge across
as far across the next estuary to [illegible] and [illegible]
on actual good [illegible] first [illegible] in the side [illegible]
them, ~~[illegible]~~ Away

~~[illegible]~~

from this the directing the [illegible] which [illegible]
The next day I noticed that there was on the estuary to the N. and a
[illegible]. my high ridge to the N. of it. All of this ridge was not to [illegible]

It rained most of the afternoon and I finally made
quite though I could not have gone much further to account
of the tide coming in.

After writing these various quartzites the afternoon
and noticing that the [illegible] are always connected
with them I am ready to give up the idea of the great
quartzite block in the [illegible]. They are in all
probability the interbedding material between the limestone
and dolomite beds. These quartzites are as a rule fine
grained but every now and then quartz bodies [illegible]
[illegible] pebble quartzite one is seen up to the inch
and a half up to 1 inch. In one case - in the soil grown half
of the material is granular soil feldspar [illegible]
The owners of these [illegible] were being divided [illegible]

granite knoll, has it Laurentia? Could [illegible] it was being stripped the Lower and Upper Cambrian time in Cambrian time. Yet there are granite boulders in the conglomerate, [illegible] boulders are in greater quantity in the center of a warp ridge. ^ [illegible] the granite, [illegible] appear to be smaller and in general they are reduced in greater quantity to pebble, under cliffs. The center of a warp ridge does not appear to project itself in any of the other ridges, and its dip is to the N.E. at about 30 degrees at the warp. Later I saw that on the S.E. side the conglomerate dips almost vertically to the S.E. Warp I found is therefore an anticline.

Wednesday Sept. 17- 1919.

A fine clear and warm beautiful day.

Started in early to make the sketches of the following pages and to note the age of the unconformable conglomerates.

As noted before one half of the conglomerates are of sandstone pebbles most of which are not unlike the quartzites of the Lilley. These pebbles are of green sandstones & iron quartzites, shaly sandstone and sometimes calcareous white and banded quartzites. The gray pebble conglomerate not at all different from those of the Lilley.

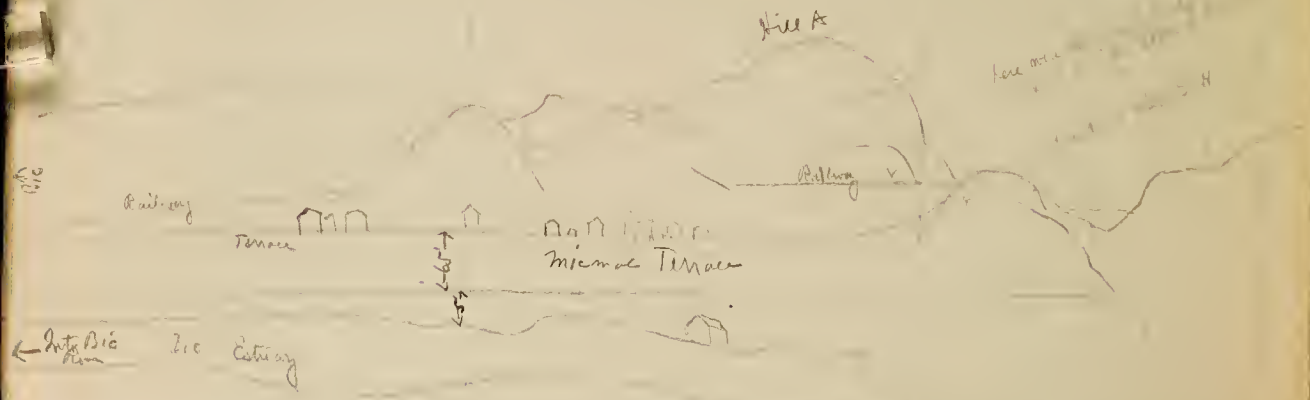
The other half of the pebbles are of dove colored structureless limestone, containing rarely in these one with fossils.

The whole is cemented with the Lilley sandstones or quartz conglomerate and all the larger interspaces are filled in with finished Lilley sandstone or gritty pebble conglomerate.

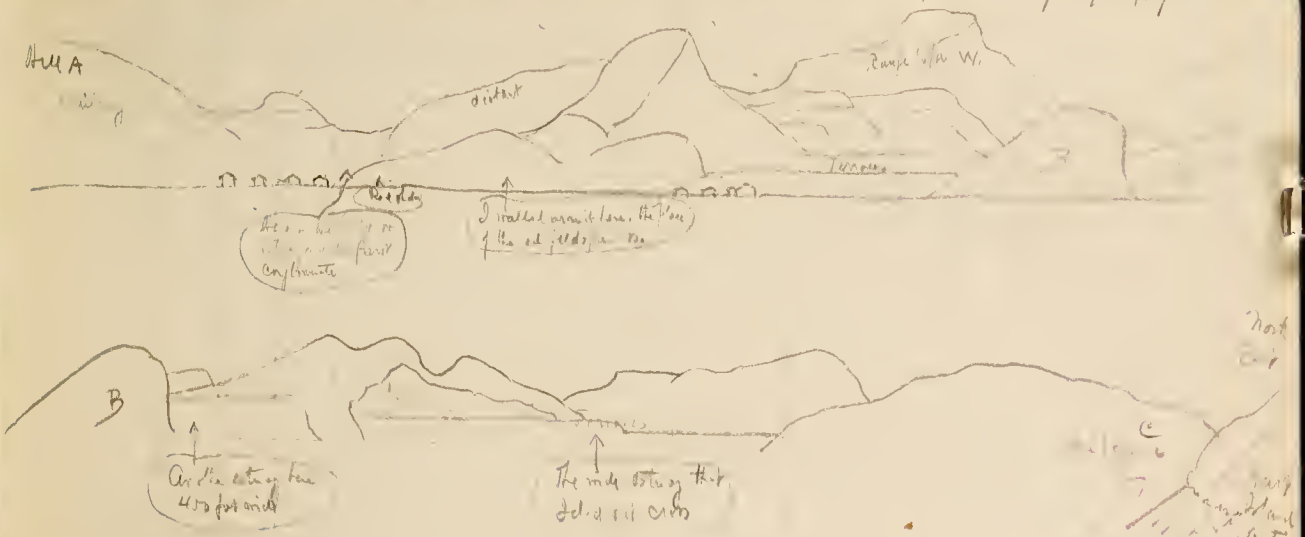
Finally the whole has been faulted, faulted and jointed and frequently torn apart by tension or that case is now transected with calcite veins. The faulting sometimes accounts for the sharp ends of the Lilley sandstone against the limestone and giving the appearance of fossil moulds. It was this that misled me before.

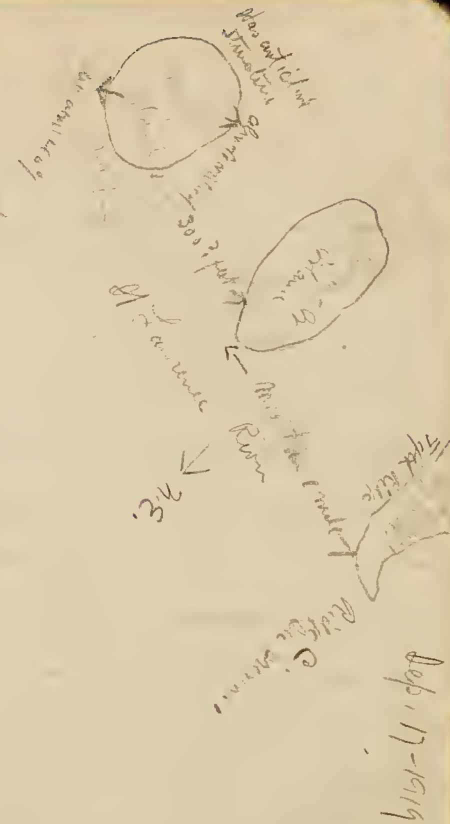
South
East

View from north of Bic Looking West. Oct. 17-1919



View as seen from portion West and near north, near Bic wharf. Sept. 17-1919



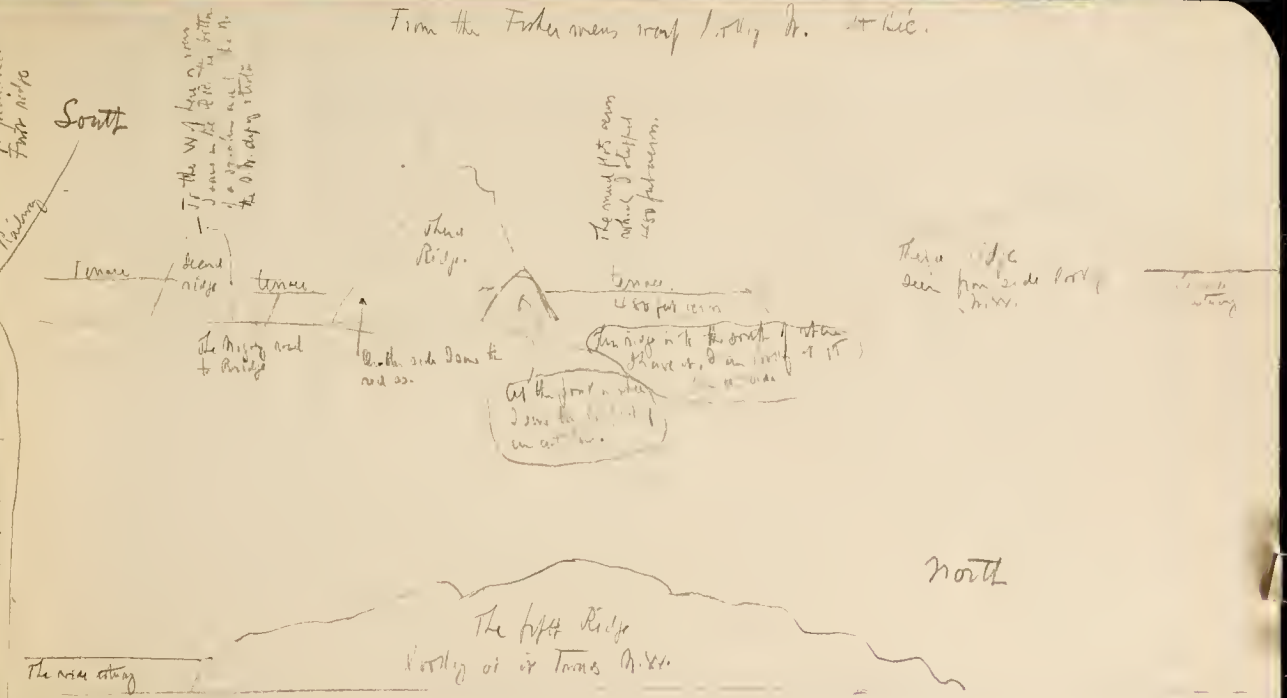


The [illegible] strike S.E. dips [illegible]

I suggest the idea that probably all of these [illegible] or at least most of them are
anticlinal in structure. Hart Island is distinctly so and
in one place just east of the wharf are much crumpled rocks.

At the west end of the tree little island to the W. of the fisher-
man wharf is a fine exposure of the quartzite and congl. dipping about 40°-60°
to the S.W. To the north are coarse green ss. with some thin shale gons, then
quartz pebble congl. and then 130 feet of li. congl. with the local infilling of
sand layers as at the outer wharf. Then follows to 5 green shales in great thickness.
[illegible]

From the Fisher views west of Mt. Lick.



These two islands mark the [illegible] ridge
numbers and the two [illegible] islands at the outer end
appear like a line of [illegible] with ridge number 4. Ridge
[illegible] runs out to sea north of [illegible] named islands
the next ridge lies still north to the N.W.

Thursday Sept. 18 - 1919.
Left Bic on the 7:00 A.M. train for Lévis.
A beautiful calm but cold morning.
When got to Lévis it was raining.

Shipped my kit & goods this morning Sept. 19 by
Canadian Express. Charges collect.

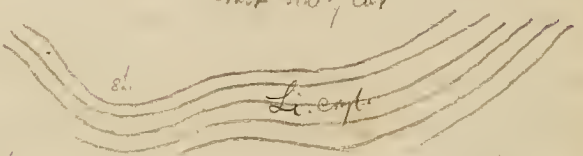
Friday Sep. 19- 1919.

Just to the west of St Joseph station on the Intercolonial Railway is shown the following section. The strata at first dip about 50° to the east but soon flatten out and dip gently for 20 to 30 to the NE.

Green sandy shales at west end of one sided cut, 30 feet seen.
Li. Conf. 30"
Green shales with thin local lenses of Li. Conf. 4'
Li. Conf. 12" to 18"
Green shales with thick local lenses of Li. Conf. (12" to 14") 8'
One bed of Li. Conf. 12'
Dark green sandy sh. with thin ss (2") 2'
Li. Conf. 3'
Sandy green sh. 6"
Li. Conf. 2'
Green sh. 12"
Li. Conf. 5'
Green sh. 18"
Li. Conf. 3'
Sh. 12"
Li. Conf. 2'
Green sh. unknown thickness

The li. fossils are here more flat than usual and lie with the bedding. They are about as usual. Some are up to 2' across. Some are sandy grey li, and all are embedded in a sandy matrix but weather [illegible]

The structure of the cut is as follows (a synclinal):-



These Li. conglt. appear to be in line of strike with those seen on Sunday to the south of St. Joseph village.

One quarter of a mile to the east there is a low cut in green very sandy shales with thin local lenses of green sandstone. Dip to the S.E. It looks like Levis formation.

One mile further east of St. Joseph in a cut at 10 mile post are seen folded green sandstones. In the intermediate green sandy shales shows. Whole looks Levis like those Raymond shows in the Lilley.

About ½ mile more east in a low cut where the railway curves and crosses a river. Thin seam of greenish shales with a few thin grey & red shales. Most of these red shales appear to be clinkstone weathering. Near the middle of the cut the green shales are interbedded with many thin (1-4") grey fine grained sandstones. A little further east the green and

Hazel shales have their gross of li. coal. These beds are for 6 inches to about 18 inches thick. At the top of the sandstone I got fish forms graptolites of true shale. At the base of the li. coal. gave I got two specimens of Phyllograptus, and in another closely adjacent gave a few Tetragraptus and other forms. This then proves that all these shales east of Mt. Joseph are Lower and not Silley.

Back to the hotel at 1.30. Had dinner and at 3.15 down Mt for home

Saw no more Ordovician red shales but in this gorge at the east end of the big Lower Carb. known there is not enough red shales to make the horizon Silley.

New Haven to Quebec

Leave	4 P.M.	New Haven to Quebec	15.39
		Albany "	3.34
"	15	Lévis to Bic	5.95
"	18	Bic to Lévis	5.95
"	19	Quebec to New Haven	14.44
"	19	Albany to Springfield	2.15

FORM HD 40

CANADIAN PACIFIC RAILWAY
HOTEL SYSTEM

Chateau Frontenac
Quebec

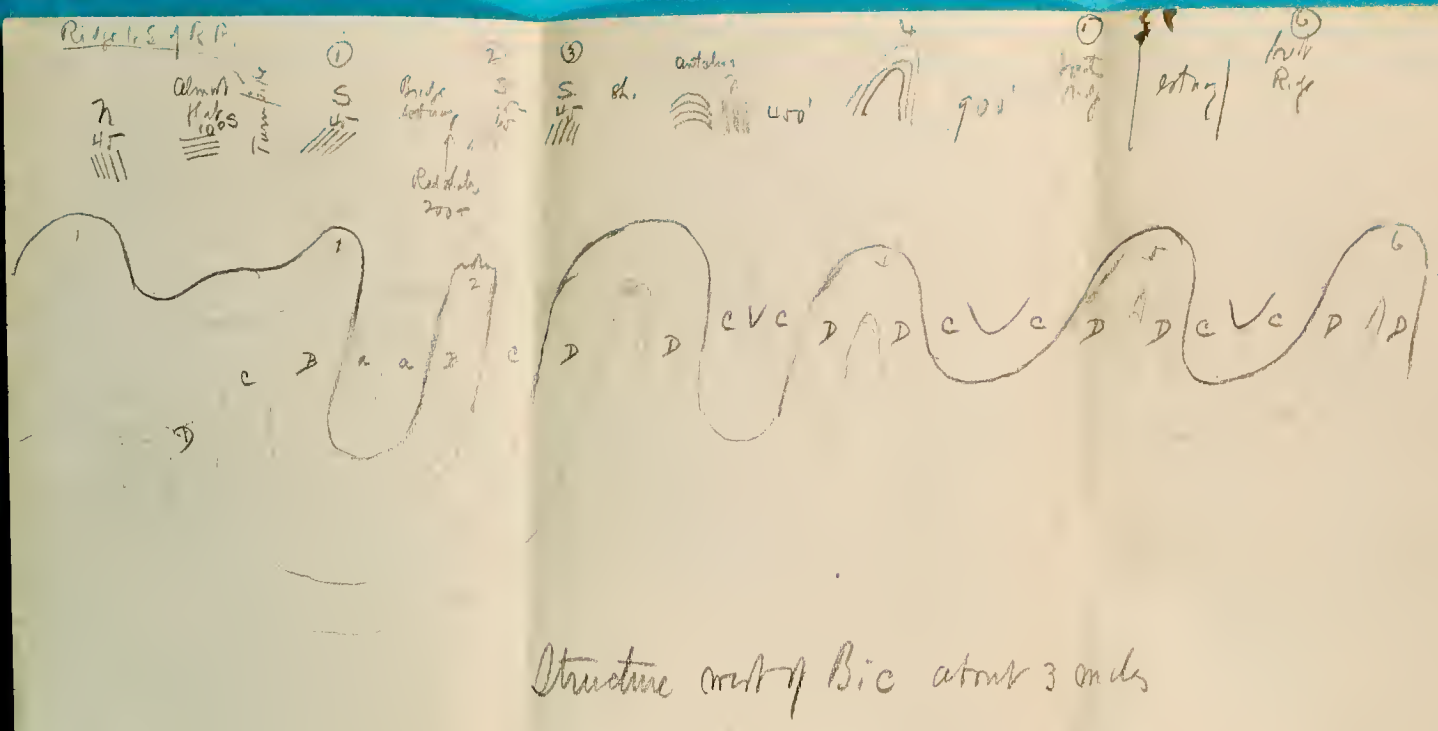
C SCHUCKERT $2.50
461 Sept 5 New Haven

ACCOUNTS ARE DUE WHEN PRESENTED

		6	7	8	9	10	11
BROUGHT FORWARD							
ROOM	2 50	2 50 / 2 50	2 50 / 2 50	7 50 / 2 50	10 — / 2 50	12 50 / 2 50	15 — / 2 50
RESTAURANT							
ROOM SERVICE							
BAR							
CIGARS AND CIGARETTES							
BAGGAGE							
LAUNDRY							
VALET							
BOOTS							
TELEPHONE							
TELEGRAMS AND CABLES							
CAB AND MOTOR HIRE							
TOTAL							
LESS CASH PAID							
ALLOWANCES							
CARRIED FORWARD							17 50

WHEN ACCOUNT

Book



Structure consisting of Bic atoms 3 cm dia

doc. 116

Le Quai et Pointe du Bic, Que.

POST CARD

MADE IN CANADA

ADDRESS ONLY

DESIGN REGIST'D

Edite par la Cie Internationale des Beaux-Arts Ltee, Montreal.
Montreal, Toronto, Winnipeg.

doc. 116

Village de Bic, des Petites Isles

POST CARD

MADE IN CANADA

ADDRESS ONLY

DESIGN REGIST.D

Printed by The Heliotype Co. Ltd., Ottawa, Ont.